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ABSTRACT

In New Delhi (India), the Central Institute of Educational Technology in collaboration with Computer Maintenance Corporation and Kentucky Educational Television launched the Classroom 2000+ project to demonstrate the use of interactive technology for distance learning and to experiment with its development in various learning situations. Six schools in Indian cities were linked with the central studio. Sixty-five students participated, responding on computer keypads to lessons in physics and mathematics. Students responded favorably to the lessons and method of presentation. Most (almost 84%) thought they had adequate time to answer teacher questions, and almost 60% thought that lesson pacing was adequate. Instructional technologists and experts expressed both approval and some concerns about implementation. Educational technology may answer the questions of equity and access regarding education, particularly in remote areas of India. (SLD)

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ASSESSMENT AND APPLICATION OF TECHNOLOGIES IN SCHOOLS IN INDIA

CLASSROOM 2000+

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In reviewing the introduction of educational technology in India, one finds that there have been several non-productive outcomes. Some of the technologies which never took off on a wide scale in the school system were slides and Super 8 films. The reasons for the poor use of these technologies were often related to cumbersome procedures or an inadequate management system within the school. Many of these technologies have become outdated by the passage of time.

There is now considerable experience in the use of technology for enhancing teaching and learning. Earlier there was a reliance only on the print media supplemented by audio/visual aids such as radio and television. The current range of technology available for enhancing teaching and learning in schools is very large. Technology in use today includes computer, microfiche, VCR, CD-ROM, video disc, facsimilie, teleconference etc. Combinations of these technologies serve to expand the range and provide multimedia alternatives for teaching and learning.

In order to get the full benefit from these technologies there needs to be a support structure consisting of a financial base and human resources. In addition, there is need for systematic development of curriculum which defines the nature and level of student outcomes. The advantage is that with the learner-centered technologies in use today, the students are in greater control of their own education and have diverse resources and pathways to learn.

As we proceed into the information age, the competencies we will require in our adult lives will often relate to collecting information and ideas, planning and organising information-related activities, solving problems and using technology. Therefore, carefully developed curriculum which enhances the skills of teaching through the use of these technologies is essential. Teachers must also be skilled in assessment of higher skills required in the areas of problem solving, hypothesising and synthesising.

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CLASSROOM 2000+

Recently in New Delhi, India, the Central Institute of Educational Technology (CIET) in collaboration with Computer Maintenance Corporation, Doordarshan, and Kentucky Educational Television, USA launched the Classroom 2000+ project. In May 1993, for a week, there was a technology demonstration interfacing live TV with computer keypad response system and phone-ins in an interactive mode for distance learning at the higher secondary level.

The main objectives of the Classroom 2000+ project were:

a) To demonstrate the use of technology in an interactive mode for distance learning

b) To experiment with the development of content in an interactive mode and study the reaction of students, teachers, and experts in the application of technology in the school system

c) To study the feasibility of adoption of technology in various learning situations

Six schools in Bombay, Calcutta, Madras, Hyderabad, Ghaziabad, and New Delhi were linked with the studio in the CIET. Sixtyfive students participated in the demonstration. The classrooms in these schools were equipped with a TV set, computer keypads, and a telelphone. Each day two lessons of 45 minutes each in Physics and Maths for class XII were telecast.

The Classroom 2000+ project enabled the participating students to respond to structured questions individually by using keypads. Additional communication between the participating students and the teacher was established by telephone. The computerized response system in each participating school consisted of a keypad for each participating student, the classroom computer, and two long-distance phone lines - one of which was used for data transmission and the other for voice communication. The TV teacher asked multiple choice questions and the students entered their responses on the keypad. As students entered their responses the answers were received in the CIET computer and tabulated on a bar graph. After 50-60% students had responded, the bar graph was made visible and the correct answer was confirmed by the teacher. Others who were viewing the program on the national network were encouraged to write down their responses to the questions posed by the TV teacher. The bar graph guided the TV teacher to restructure the lesson material and change the strategy and pace of teaching. In addition, a phone-in facility enabled the students to phone the TV teacher for further clarification. These elements of interaction built into the system made teaching highly

flexible by breaking the one-way communication limitation of TV. In this configuration, individual student responses can be stored in the main computer as well as in the classroom computer. The printout and the responses can also be made available to the class tutor/students.

RESPONSES

Student responses to the Classroom 2000+ project include the following:

"We felt that we were in a real classroom situation"

"It is a boon to us in small towns where quality teaching and books are not available"

"Responding to questions and checking my responses built my self -confidence"

"This method of teaching made me attentive and I watched with concentration. I was alert throughout"

Instructionai technologists and experts said:

"Science and math are highly structured and involve logical processes. These are well demonstrated in this project"

Others wondered:

"If it was a demonstration using technology to replace the classroom teacher, then this project failed to do so...Classroom teaching is slower and there is more provision for clarification"

"The system could go a long way in solving educational disparities"

"It could be a great equaliser by disseminating good teaching"

"Some bright questions asked by the students were stimulating, thought provoking, and helpful in learning subjects"

Analysing the responses of the students, it was found that overall the visual quality and illustrations were rated as very good. The students would have liked more time for copying the information shown on the screen. Almost 84% of the students found that time to answer the questions posed by the teacher was adequate, and pacing was alright for almost 60% of the students. Many of the difficulties related to English language comprehension.

The teacher in India has always been very conservative in using technology in the classroom. Often the policymakers are caught up with the "machine" factor and the "cost." Rapid changes in technology make it

difficult to keep up with the changes. Each technology has its own specialisation and skill requirement. Along with these fears are the questions "Are we preparing our children adequately for the future or are we falling behind?" "Do these fears propel us to use advanced technology?" There are other questions of equity and access, particularly for schools located in remote areas.

The media and the educationists have to jointly initiate steps to use technology and move into the information age.